

Observations.	G.M.T.	Observer.	Instr.	Remarks.
	h m s			
First contact with shadow	8 15 20.4	S. P.	8-in.	Def. poor.
"	8 16 31.0	J. R.	Cassegrain	"
Beginning of totality	9 18 52	A. M.	4-in.	
"	9 19 30.8	J. R.	Cassegrain.	
End of totality	10 46 6.3	"	"	A little late.
"	10 46 31.5	S. P.	Binocular.	Fair.
Last contact with shadow	11 48 45.9	J. R.	Cassegrain.	
"	11 48 52.1	A. C.	Newtonian.	
"	11 49 54.2	S. P.	Binocular	Limb still charred.

The following stars were occulted :—

Döllén's No.	G.M.T.		Observer.	Instr.	Remarks.
	Disappearance.	Reappearance.			
	h m s	h m s			
81	9 36 41.6	10 35 4.5	W. C.	8-in.	
81	9 36 53.2		A. M.	4-in.	Fair.
82	9 22 36.0		W. C.	8	( Some uncertainty as to star.
85	9 24 23.8	10 31 38.5	W. C.	8	Good.
94	10 8 44.6		S. P.	8	
95	10 13 27.2		S. P.	8	
106	10 43 35.9		J. R.	Cassegrain.	
106	10 43 35.9		A. C.	4	Difficult.
109	10 36 50.2		J. R.		
109	10 36 57.2		A. C.		Poor.
Unknown.	9 35 6.3		W. C.		45° 10' from N.

The initials stand for A. Müller, A. Cortie, W. Carlisle, J. Rooney, and S. Perry.

*Stonyhurst Observatory:*  
1884, Nov. 8.

*Occultations Observed during the Total Eclipse of the Moon, 1884, October 4, at Harrow. By Lieut.-Col. G. L. Tupman.*

I used the 4½-inch Cooke Refractor which is fitted with position-circle and bar eyepiece, power 66, extremely convenient for occultations. Scarcely any of the stars on M. Döllén's list could be seen before the Moon was totally immersed, and, even during the period of the greatest obscuration, stars of about the tenth magnitude became extremely faint when within a second of arc of the Moon's limb, owing to the brightness of the latter. The

sky was quite clear and the air steady. An assistant called the seconds aloud from the mean-time chronometer Fletcher 1050. For the reappearances the bar was set to the position-angle and placed tangent to the Moon's limb a few seconds of arc off the limb. In spite of this precaution several reappearances were observed for which I could not be certain that I caught the exact emersion. The following are the only times for which I was sure of the phase:—

Star.	Green. M.T.			Phase.
	h	m	s	
63	9	2	7.0	Disap.
81	9	33	40.6	„
69	9	39	35.1	Reap.
74	9	50	14.1	„
94	10	6	54.1	Disap.
109	10	37	25.6	„

The time was determined, with a small transit instrument lent to me by Mr. Latimer Clark, by observing high and low stars with reversed positions of the axis.

1884.	G.M.T.		Fletcher 1050 fast on G.M.T.	
	h	m	s	
Sept. 30	9	57	27.3	1 star only
Oct. 3	9	38	23.76	8 stars
11	9	53	9.07	4 „

In the middle of the eclipse the chronometric correction has been taken  $-22^s.4$ . The Greenwich mean time has been obtained by allowing the Geodetic Longitude  $1^m 20^s.0$  West, taken from the 6-inch ordnance survey.

The total light reflected from the Moon was compared directly with the stars as follows:—

h m			
At 9	45	G.M.T. equal to $2\frac{1}{2}$ magnitude.	
10	8	„	3 „
10	30	„	2 „
10	44	„	Capella

The very slight ruddy tint during totality was not perceptible until a direct comparison with white stars was made.

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*The Total Eclipse of the Moon, 1884, October 4.* By  
W. F. Denning.

A perfectly cloudless sky enabled the total lunar eclipse of October 4 to be well observed from this city.

The most noteworthy feature in connection with the phenomenon was that the Moon, at the total phase, appeared far less